General Biology

ALLOMETRIC SCALING IN THREE SIZES OF EQUIDS (*Equus caballus*), Kathryn M. Smith, Tammy R. Bragg, R. C. Apter*, Truman State University, Department of Agricultural Science, 100 E. Normal, Kirksville, MO 63501, kms264@truman.edu.

As an extension of an ongoing study, this research project concerns relative growth patterns of body parts in equids (*Equus caballus*) of three body types. In a previous study, eight body dimensions, including body mass, were determined for 32 Quarter Horse and Paint mares (light body type) and 29 Percheron mares (heavy body type). With the current study, 11 miniature horses of mixed gender were integrated into the dataset to test if the smaller body type would follow previously determined allometric and isometric patterns observed with the two larger body types. Male miniature horses were included in the data set as they fit well with data for the females, with no outliers. Compared to previous trials, R^2 values improved greatly with the addition of the miniature horse data, indicating that previously noted allometric and isometric growth patterns are consistent across a variety of body sizes within this species. Results indicate the most closely correlated dimensions are withers height and leg length with an R^2 of 0.9774. A preliminary formula for computing body mass was also developed, utilizing body dimensions of withers height, leg length, and body length (R^2=0.9668). Future studies will incorporate Arabian horse mares as well as males (geldings and/or stallions) of the light and heavy body types.